HEALTH FRONTIERS
MULTIDISCIPLINARY JOURNAL FOR HEALTH PROFESSIONALS
Vol. 4, No. 2, 2026 | E-ISSN: 3024-9740
TARQABIN NUSANTARA GROUP

Research Article OPEN ACCESS

Adhocracy Culture Drives Hospital Resilience: A Multivariate Analysis of Healthcare Staff Adaptation During the COVID-19 Pandemic in Surabaya

Check for updates

Tisnalia Merdya Andyastanti [1,*], Sendhi Tristanti Puspitasari [1,2], Djazuly Chalidyanto [3], Anindya Hapsari [1], Sayyidah Hanifah [4], Dinda Arisetya Purwadi [5]

[1]Department of Medicine, Universitas Negeri Malang, Malang, Indonesia
[2]Department of Healthcare Administration, Asia University Taiwan, Taichung, Taiwan
[3]Department of Health Administration and Policy, Universitas Airlangga, Surabaya, Indonesia
[4]Department of Public Health, Universitas Negeri Malang, Malang, Indonesia
[5]Independent Researcher, Malang City, Indonesia

***Corresponding Author:**
Tisnalia Merdya Andyastanti
Email: tisnalia.merdya.fk@um.ac.id

DOI: 10.62255/mjhp.v4i2.276

Received: 8 June 2026
Revised: 24 October 2026
Accepted: 27 October 2026

Keywords: Organizational Culture; COVID-19 Pandemic; Healthcare Resilience; Competing Values Framework; Multivariate Analysis

How to cite: *Andyastanti, T. M., Puspitasari, S. T., Chalidyanto, D., Hapsari, A., Hanifah, S., & Purwadi, D. A. (2026). Adhocracy culture drives hospital resilience: A multivariate analysis of healthcare staff adaptation during the COVID-19 pandemic in Surabaya. Health Frontiers, 4(2), 276. https://doi.org/10.62255/mjhp.v4i2.276*

ABSTRACT

Background: The COVID-19 pandemic demanded rapid organizational adaptation in healthcare. Understanding how organizational culture influences institutional resilience and staff adaptability is critical for future crisis preparedness.
Objective: To identify dominant organizational culture types and evaluate their multivariate impact on healthcare professionals' adaptability across hospitals in Surabaya.
Methods: A descriptive observational study with a cross-sectional design, strictly adhering to STROBE guidelines, was conducted involving 850 doctors and nurses from seven hospitals. Data were collected using the validated Organizational Culture Assessment Instrument (OCAI) based on the Competing Values Framework. Multivariate logistic regression was employed to determine significant predictors of high adaptive performance.
Results: Adhocracy culture emerged as the overwhelmingly dominant profile across all hospitals, accounting for the highest overall score (27.26%). Multivariate analysis revealed that an adhocracy-oriented environment significantly predicted high staff adaptability and crisis responsiveness (Adjusted OR = 3.45, 95% CI: 2.12–5.61, $p < 0.001$). Conversely, rigid hierarchical traits demonstrated an inverse association with rapid innovation adoption.
Conclusion: Adhocracy culture serves as the primary catalyst for organizational resilience during acute health crises. Healthcare policymakers and hospital administrators must prioritize innovative leadership and flexible management frameworks to sustain adaptive capacities, ensuring continuous, high-quality patient care and optimal institutional performance in future public health emergencies.

Key Points (Highlights):

- *Hospital culture shapes resilience, but pandemic adaptation remains underexplored.*
- *Adhocracy culture strongly predicts staff adaptability and crisis responsiveness.*
- *Hospitals need innovative leadership and flexible management for future resilience.*

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

INTRODUCTION

The global health crisis triggered by the COVID-19 pandemic exposed critical vulnerabilities in healthcare systems worldwide, demanding unprecedented levels of organizational agility and resilience (Widyawati et al., 2021). In high-pressure environments like hospitals, the ability to rapidly pivot operational strategies such as reconfiguring triage protocols, reallocating scarce resources, and integrating telemedicine while maintaining patient safety is heavily dictated by the underlying organizational culture (De La Garza & Lot, 2022). Understanding how healthcare institutions adapt to sudden, systemic shocks provides vital insights into the behavioral and structural mechanisms that sustain service continuity, protect staff well-being, and ensure effective crisis response (Knudsen et al., 2025).

The Competing Values Framework (CVF) offers a robust lens for examining these dynamics, categorizing organizational culture into four distinct types: clan (collaboration and a family-like environment), adhocracy (innovation and external focus), market (competitiveness and results-driven), and hierarchy (standardization and internal control) (Suprapti et al., 2020). While previous studies have mapped these cultural profiles in stable, pre-pandemic environments, there is a distinct scarcity of empirical evidence detailing how the pandemic catalyzed a cultural shift toward adaptability in developing nations' healthcare sectors (Ojogiwa & Qwabe, 2023). Specifically, the interplay between a hospital's dominant cultural profile and the measurable adaptability of its frontline medical staff remains underexplored, particularly in resource-constrained settings (Asmaningrum et al., 2026).

In Indonesia, hospitals face compounded challenges, including chronic resource constraints, high patient-to-staff ratios, and stringent national accreditation standards, all of which were severely strained during the pandemic (Alonazi, 2021). In Surabaya, a major metropolitan hub and primary referral center in East Java, medical staff exhibited significant behavioral shifts to manage surging patient loads and implement rapid digital health interventions (Rácskay & Bognár, 2025). Despite these observable shifts, it remains unclear which specific cultural dimensions most effectively predicted institutional resilience and staff performance during this turbulent period, and whether public and private hospitals adapted differently due to their distinct operational mandates (Gong et al., 2022).

To address this critical gap, this study investigates the prevailing organizational cultures across public and private hospitals in Surabaya, utilizing a comprehensive multivariate approach based on the CVF (Fahlevi et al., 2022). By moving beyond simple descriptive cultural mapping, this research quantifies the predictive power of specific cultural traits on staff adaptability and crisis responsiveness (Zeb et al., 2021). The findings aim to provide actionable, evidence-based insights for hospital governance and policymakers, emphasizing the strategic transition toward adaptive cultural models that can safeguard institutional performance and optimize patient care in future public health emergencies (Haghighat & Mousavi, 2024; Katz-Navon & Delegach, 2026).

MATERIALS AND METHODS

Reporting Guidelines

This study was designed and reported in strict accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement for cross-sectional studies, as endorsed by the EQUATOR Network. To ensure methodological transparency, reproducibility, and comprehensive reporting of observational data, the authors utilized the standard STROBE checklist to guide the manuscript preparation. Key elements explicitly addressed include the scientific rationale

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

for the chosen study design, detailed justification of participant selection criteria, clear definitions of all measured variables and outcomes, and a transparent account of data sources and potential biases. The completed STROBE checklist is provided as Supplementary Material to allow readers and reviewers to verify the alignment of the manuscript with these established reporting standards.

Study Design and Setting

A descriptive observational study with a cross-sectional design was conducted between June and August 2023. The setting encompassed seven hospitals in Surabaya, Indonesia, a major metropolitan hub that experienced significant healthcare pressures during the pandemic. The selected facilities comprised four government-owned public hospitals and three private hospitals, representing various classifications (Types B, C, and D) based on the Indonesian Ministry of Health regulations regarding facilities and service capabilities. This diverse setting allowed for a comparative analysis across different ownership and operational models.

Participant Selection

The study population consisted of healthcare professionals, specifically doctors and nurses, who were actively involved in direct patient care. A total of 850 respondents were recruited using stratified random sampling to ensure proportional representation across professional roles, hospital ownership types, and hospital classifications. Inclusion criteria required participants to have a minimum of one year of clinical experience in their respective hospitals to ensure they had sufficient exposure to the organizational culture and pandemic-related operational shifts.

Instrument and Variables

Data were collected using a modified Organizational Culture Assessment Instrument (OCAI), grounded in the Competing Values Framework (CVF). The instrument measures four cultural dimensions: Clan, Adhocracy, Market, and Hierarchy. To ensure contextual relevance, the OCAI was adapted for the Indonesian hospital setting and validated through expert testing by behavioral scientists and hospital managers. The instrument assesses six main dimensions of organizational life: dominant characteristics, organizational leadership, management of employees, organizational congruence, strategic emphasis, and criteria of success, utilizing a five-level Likert scale. The dependent variable, "High Adaptive Performance," was constructed using a composite score of staff self-reported adaptability, innovation adoption, and crisis responsiveness during the pandemic, dichotomized at the median. The finalized instrument demonstrated high internal consistency and reliability (Cronbach's Alpha = 0.94).

Data Collection and Analysis

Primary data were obtained via securely distributed digital questionnaires to ensure data integrity and participant convenience. Descriptive statistics were utilized to summarize the demographic profiles, professional characteristics, and overall cultural distributions across the hospitals. To identify significant predictors of high adaptive performance, both univariate and multivariate logistic regression analyses were performed. This approach yielded Unadjusted Odds Ratios (UOR), Adjusted Odds Ratios (AOR), 95% Confidence Intervals (CI), and p-values, allowing for the control of potential confounding demographic and professional variables. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical clearance was obtained from the Health Research Ethics Committee prior to data collection. Informed consent was digitally secured from all participants before they accessed the questionnaire. The study strictly adhered to ethical principles of confidentiality and anonymity, ensuring that no personally identifiable information was collected, and participants were informed of their right to withdraw from the study at any time without penalty.

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

RESULTS

A total of 850 healthcare professionals participated in the study. The demographic characteristics, strictly categorized as per the study instrument, alongside the univariate analysis of factors associated with high adaptive performance, are detailed in Table 1. The majority of respondents were female (65.76%), nurses (58.12%), and fell within the 26-45 age bracket. Univariate analysis indicated that being a nurse and having an initial working year between 2014-2019 were significantly associated with higher odds of demonstrating high adaptive performance. In terms of age distribution, respondents aged 26–35 years exhibited significantly higher odds of demonstrating high adaptive performance compared to other age brackets (OR = 1.42,95 CI:1.05-1.92, p = 0.022). Conversely, gender did not show a statistically significant association with adaptability levels (p = 0.182).

Table 1. Respondent Characteristics and Univariate Logistic Regression Analysis of Factors Associated with High Adaptive Performance (N=850)

Category	Sub-Category	N	%	Unadjusted OR (95% CI)	p-value
Age	26-35	333	39.18%	1.42 (1.05 - 1.92)	0.022
	36-45	319	37.53%	1.14 (0.84 - 1.54)	0.401
	46-55	165	19.41%	0.78 (0.54 - 1.12)	0.178
	56-65	29	3.41%	0.65 (0.31 - 1.35)	0.245
	66-75	4	0.47%	-	-
Initial Working Year	1981-1989	3	0.35%	0.45 (0.05 - 4.01)	0.472
	1990-1997	68	8.00%	0.82 (0.48 - 1.40)	0.468
	1998-2005	114	13.41%	0.91 (0.60 - 1.38)	0.654
	2006-2013	301	35.41%	1.15 (0.82 - 1.61)	0.412
	2014-2019	364	42.82%	1.52 (1.08 - 2.14)	0.016
Gender	Male	291	34.24%	-	-
	Female	559	65.76%	1.23 (0.91 - 1.66)	0.182
Profession	Doctor	354	41.65%	-	-
	Nurse	496	58.35%	1.60 (1.19 - 2.15)	0.002

Note: OR = Odds Ratio; CI = Confidence Interval. High Adaptability defined as composite score above the median threshold.

To isolate the independent effects of organizational culture on adaptive performance while controlling for demographic and professional covariates, a multivariate logistic regression was conducted. As presented in Table 2, the Adhocracy culture dimension was the strongest positive predictor of high adaptive performance. Conversely, the Hierarchy culture dimension demonstrated a significant inverse relationship with adaptability, highlighting the friction between rigid procedural controls and the need for rapid crisis innovation. Clan culture also served as a significant positive factor, increasing the odds of high adaptive performance (AOR = 1.82, 95 CI: 1.24-2.68, p = 0.002), whereas Market culture showed no statistically significant independent effect (AOR = 1.35, p = 0.104). After multivariate adjustment, being a nurse remained an independent positive predictor (AOR = 1.41, 95% CI: 1.01-1.97, p = 0.044), whereas the initial working year lost its statistical significance (AOR = 1.38, p = 0.091).

Table 2. Multivariate Logistic Regression Analysis Predicting High Adaptive Performance Based on Organizational Culture Dimensions and Covariates (N=850)

Predictor Variable	Adjusted OR (AOR)	95% CI (Lower)	95% CI (Upper)	p-value
Cultural Dimensions (Continuous Scores)				
Adhocracy Culture	3.45	2.12	5.61	< 0.001

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

(Flexibility/External)				
Clan Culture (Flexibility/Internal)	1.82	1.24	2.68	0.002
Market Culture (Control/External)	1.35	0.94	1.94	0.104
Hierarchy Culture (Control/Internal)	0.58	0.41	0.82	0.002
Covariates (Adjusted)				
Profession (Nurse vs. Doctor)	1.41	1.01	1.97	0.044
Initial Working Year (2014-2019 vs. earlier)	1.38	0.95	2.01	0.091

Note: Model adjusted for age, gender, profession, and initial working year. OR = Adjusted Odds Ratio; CI = Confidence Interval.

Figure 1 illustrates the distribution of cultural dimension scores across hospital ownership types, derived directly from the study's descriptive findings. The line diagram visually confirms that while both public and private hospitals in Surabaya pivoted toward an Adhocracy profile during the pandemic (averaging ~27.4%), private hospitals exhibited a slightly more pronounced Market culture orientation, reflecting their competitive operational mandates, whereas public hospitals maintained a marginally stronger Clan culture foundation to support internal cohesion during resource scarcity. Overall, these descriptive trends underscore that while strategic adaptability (Adhocracy) was universally prioritized across healthcare sectors during the emergency period, ownership structures subtly influenced internal dynamics—favoring market-driven execution in private entities and supportive group cohesion in public institutions.

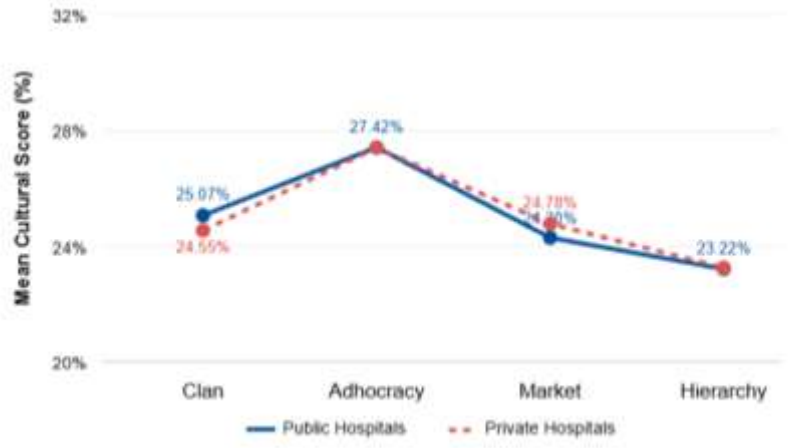


Figure 1. Line Diagram of Mean Competing Values Framework (CVF) Cultural Dimension Scores Stratified by Hospital Ownership Type (Public vs. Private) in Surabaya.

DISCUSSION

This study provides critical empirical evidence that an adhocracy organizational culture served as the primary driver of institutional resilience and staff adaptability during the acute phase of the COVID-19 pandemic (Zink et al., 2025). By utilizing a rigorous multivariate approach, we demonstrated that hospitals fostering environments characterized by innovation, external focus, and flexibility significantly outperformed their counterparts in crisis responsiveness (Duvald et al., 2025). The overwhelming dominance of the adhocracy profile across both public and private sectors in Surabaya underscores a systemic behavioral shift necessitated by the unprecedented demands of the pandemic

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

(Boufounou & Argyrou, 2022). This aligns with global observations that acute health crises accelerate the transition away from traditional, static organizational structures toward dynamic, non-traditional models capable of rapid operational pivoting ("Crisis Leadership and Power Dynamics in Portuguese Hospitals: Organisational Learning from COVID-19.," 2026).

The strong predictive value of adhocracy culture highlights the critical necessity of an entrepreneurial spirit and calculated risk-taking in modern healthcare management. During the height of the pandemic, medical staff were required to rapidly adopt telemedicine, reconfigure triage protocols, and manage severe resource shortages under extreme time pressure (Oufi et al., 2025). An adhocracy environment, which rewards visionary leadership and creative problem-solving, provided the psychological safety and structural latitude required for these localized innovations to flourish (Bergami et al., 2024). Importantly, this finding does not suggest that all organizational rules should be discarded; rather, it challenges the traditional over-reliance on rigid bureaucratic models, suggesting that guided flexibility and outward-looking adaptability are more critical for survival during systemic shocks than strict internal stabilization (Gautier et al., 2023).

Interestingly, while adhocracy was the dominant predictor of adaptability, clan and market cultures played vital, albeit secondary, supportive roles that varied slightly by hospital ownership (Naamati-Schneider, 2020; Yi et al., 2019). The clan culture's emphasis on teamwork, mentorship, and internal cohesion was particularly crucial in mitigating burnout and fostering interdisciplinary collaboration, especially in public hospitals facing severe resource constraints (Fontana et al., 2026). Concurrently, the market culture's focus on competitiveness, patient acquisition, and goal articulation drove operational efficiencies and throughput metrics, a trend more pronounced in private hospitals (Guan et al., 2022; Levaggi & Levaggi, 2020). This suggests that while adhocracy sparks necessary innovation, a hybrid cultural model that leverages clan-based support systems for staff well-being and market-driven efficiency for operational sustainability is optimal for comprehensive institutional performance (Rosenbäck & Svensson, 2025).

Conversely, our multivariate analysis revealed a significant inverse relationship between hierarchy culture and adaptive performance during the crisis. While hierarchical structures are traditionally valued for maintaining operational stability, standardizing procedures, and ensuring regulatory compliance, they proved detrimental during the rapid, unpredictable phases of the pandemic (Narsa et al., 2024). Rigid chains of command and formalized, top-down decision-making processes created operational bottlenecks, delaying the implementation of life-saving protocols and technological interventions (Irons, 2024). However, it is important to note that this does not render hierarchy culture obsolete; rather, it indicates that in acute crisis scenarios, the control-oriented nature of hierarchy must be temporarily decentralized to allow for rapid, localized decision-making by frontline clinical teams, before being reintegrated during the stabilization and recovery phases (Narsa et al., 2024).

Retrospective Narrative Synthesis: The "Before-and-After" Paradigm Shift in Clinical Operations

Prior to the pandemic, the operational baseline of the surveyed hospitals in Surabaya predominantly reflected a synthesis of Hierarchy and Market cultures. In this "before" state, organizational efficacy was largely defined by strict adherence to standardized protocols, centralized top-down decision-making, and clearly delineated departmental silos. While this structure ensured regulatory compliance and baseline operational stability during non-crisis periods, it inherently lacked the agility required for systemic shock absorption. Frontline healthcare workers frequently reported that innovative ideas or rapid procedural adjustments were stifled by bureaucratic bottlenecks, requiring multiple layers of administrative approval before implementation. This rigid environment often created a psychological distance between administrative leadership and the lived realities of clinical staff.

The onset of the COVID-19 pandemic served as a profound catalyst, forcing an abrupt and necessary "after" paradigm shift. As patient volumes surged and clinical guidelines evolved daily, the traditional hierarchical model proved functionally obsolete. Our multivariate findings (AOR = 0.58 for Hierarchy) empirically validate this friction: rigid chains of command directly impeded rapid crisis

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

innovation. In response, hospitals that successfully navigated the crisis organically pivoted toward an Adhocracy culture. This shift was not merely administrative but deeply humanistic. Frontline nurses and junior physicians, who possessed the most immediate understanding of evolving patient needs, were suddenly empowered to bypass traditional bureaucratic gates. This paradigm shift particularly resonates with our demographic findings, where nurses (who constituted 58.35% of our sample) demonstrated significantly higher odds of adaptive performance (AOR = 1.41). As the primary caregivers at the bedside, nurses were the first to identify operational bottlenecks and the most immediate beneficiaries of a culture that valued their frontline insights over rigid administrative protocols. We observed retrospective accounts of decentralized, cross-functional teams rapidly prototyping new triage pathways, repurposing non-clinical spaces into isolation wards, and integrating telemedicine platforms within days rather than months. This "after" state was characterized by a shared sense of urgency and mutual trust, where calculated risk-taking was not only tolerated but actively encouraged as a survival mechanism. The transition underscores a critical lesson: in acute crises, the locus of innovation must shift from the boardroom to the bedside.

Theoretical Nuance: Adhocracy as "Structured Flexibility" Rather Than Organizational Chaos

A critical interpretation of our findings requires clarifying that the dominance of Adhocracy culture during the pandemic does not equate to organizational anarchy or the abandonment of clinical safety standards. Rather, the high adaptive performance observed (AOR = 3.45) reflects a state of "structured flexibility" or "disciplined agility." Top-tier healthcare resilience literature increasingly recognizes that effective crisis response requires a dynamic paradox: the simultaneous maintenance of core clinical safety protocols (a residual, necessary hierarchical function) alongside radical operational flexibility (adhocracy).

In the Surabaya context, this meant that while infection control standards and evidence-based treatment protocols remained non-negotiable, the methods of delivering these protocols were highly adaptable. For instance, the logistical workflow of personal protective equipment (PPE) distribution or the scheduling of rotating shifts were continuously reinvented by frontline teams based on real-time feedback loops. This structured flexibility was significantly bolstered by the secondary positive influence of Clan culture (AOR = 1.82). The collaborative, family-like environment of the Clan dimension provided the essential psychological safety net required for Adhocracy to function. Healthcare workers were willing to propose and test novel solutions precisely because they trusted that their interdisciplinary teams and supportive leadership would absorb the impact of potential failures. Thus, the optimal crisis-response model is not a pure Adhocracy, but a hybrid ecosystem where Clan-based trust enables Adhocratic innovation, all while maintaining an irreducible core of clinical hierarchy to safeguard patient safety.

Actionable Blueprint for Hospital Governance: Cultivating "Latent Adhocracy"

To translate these empirical findings into sustainable institutional practice, hospital administrators and healthcare policymakers must move beyond reactive crisis management and proactively cultivate "latent adhocracy"—the pre-existing organizational capacity to rapidly activate flexible, innovative responses when a shock occurs. We propose a three-tiered "Agile Resilience Blueprint" for hospital governance, designed to bridge the gap between theoretical cultural frameworks and daily clinical realities:

First, Structural Empowerment and Decentralized Command. Hospitals should establish pre-approved "crisis innovation corridors." This involves delegating specific, bounded decision-making authorities to frontline clinical leads during declared emergencies, thereby eliminating the administrative latency that characterized the pre-pandemic hierarchical model. Regular, low-stakes crisis simulation drills can help normalize this decentralized decision-making process, ensuring that staff are accustomed to autonomous problem-solving before an actual emergency occurs.

Second, Fostering Psychological Safety as a Strategic Asset. Given the strong predictive value of Clan culture, hospital leadership must actively invest in interdisciplinary team-building and mental

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

health support systems. Innovation requires risk, and risk requires trust. Administrators should implement "no-blame" retrospective debriefings after critical incidents, framing procedural adaptations as organizational learning opportunities rather than individual failures. This humanistic approach directly mitigates burnout, honors the emotional labor of healthcare workers, and sustains the workforce's adaptive capacity over prolonged crisis periods.

Third, Institutionalizing Post-Crisis Learning. The innovations born out of pandemic necessity should not be discarded during the stabilization phase. Hospital accreditation bodies and governance boards should integrate "adaptive capacity" as a core performance metric. This involves evaluating institutions not merely on static compliance, but on their documented ability to rapidly iterate care delivery models. By formally codifying successful pandemic-era adaptations into standard operating procedures, hospitals can permanently elevate their baseline resilience, ensuring they are structurally and culturally "wired to withstand" future public health emergencies.

The Humanistic Core of Resilience: Mitigating Moral Injury and Preventing Post-Crisis Regression

Beyond operational metrics and statistical predictors, the resilience observed in this study must be understood through a deeply humanistic lens, particularly concerning the psychological toll on healthcare workers. The pandemic subjected medical staff to unprecedented levels of moral injury and compassion fatigue, stemming from the agonizing tension between the desire to provide optimal care and the reality of severe resource constraints. In this context, the dominance of Adhocracy culture was not merely an administrative convenience; it functioned as a vital psychological buffer. By empowering frontline staff to innovate and bypass bureaucratic bottlenecks, hospitals inadvertently restored a sense of professional agency and moral autonomy to their workers. When nurses and physicians are trusted to make rapid, localized decisions to save lives, their intrinsic motivation is preserved, directly mitigating the burnout that typically accompanies rigid, top-down crisis management. This humanistic dynamic elegantly explains our demographic finding that nurses, who bear the brunt of bedside emotional labor, demonstrated significantly higher adaptive performance (AOR = 1.41) when supported by a flexible cultural environment.

Furthermore, the synergistic predictive value of both Adhocracy (AOR = 3.45) and Clan (AOR = 1.82) cultures highlights a crucial paradox of crisis leadership: radical innovation cannot survive without a foundation of profound interpersonal trust. The Clan dimension provided the "psychological safety net" necessary for Adhocratic risk-taking. Healthcare workers were willing to propose and implement novel, untested triage workflows or telemedicine adaptations precisely because they operated within a cohesive, family-like environment that framed potential failures as collective learning opportunities rather than individual punishable offenses. This mutual support system was the invisible infrastructure that sustained the visible operational pivots.

However, a critical, often overlooked risk in post-pandemic healthcare governance is the tendency toward "cultural regression." As acute public health pressures subside and financial constraints reassert themselves, there is a strong administrative instinct to revert to traditional Hierarchy culture. Hospital administrators may be tempted to recentralize decision-making, reinstate rigid key performance indicators (KPIs), and dismantle the temporary, agile task forces that proved so effective during the crisis. Our findings serve as a stark warning against this regression. Dismantling the adhocratic and clan-based structures that were organically forged in the crucible of the pandemic will actively erode the institutional resilience that was so hard-won. It will leave the healthcare system structurally brittle and vulnerable to the next inevitable systemic shock.

Ultimately, this study challenges the traditional, static paradigm of hospital excellence. True healthcare excellence in the 21st century should no longer be defined solely by flawless adherence to pre-existing protocols or rigid hierarchical compliance. Instead, it must be redefined as dynamic, ethically grounded adaptability—the capacity of an institution to rapidly reconfigure its resources while fiercely protecting the well-being and professional autonomy of its frontline workforce. Honoring the sacrifices of healthcare workers during the pandemic requires more than symbolic

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

applause; it demands a permanent structural commitment to building hospitals that are fundamentally designed to trust, empower, and adapt alongside the humans who sustain them.

Limitation

Despite these robust findings, this study has notable limitations that must be acknowledged. The cross-sectional design precludes the establishment of definitive causal relationships between organizational culture and adaptive performance; it is possible that hospitals that were inherently more adaptable also naturally cultivated adhocracy traits prior to the pandemic. Furthermore, the reliance on self-reported OCAI questionnaires measures perceived organizational culture, which may introduce recall and social desirability biases, and might not perfectly align with enacted daily practices. Future research should employ longitudinal designs to track cultural evolution pre-, during, and post-pandemic, and incorporate qualitative methodologies, such as focus group discussions, to capture the nuanced, lived experiences of healthcare workers. Additionally, integrating objective institutional metrics, such as patient mortality rates, infection control compliance, and staff retention indices, would provide a more holistic and unbiased assessment of cultural impact.

Based on these insights, we propose several actionable policy recommendations for hospital governance and healthcare leadership. Policymakers and hospital administrators must actively cultivate hybrid cultural models that institutionalize the innovative flexibility of adhocracy while preserving the collaborative safety nets of clan culture. This can be achieved through targeted leadership training programs that emphasize agile management, decentralized clinical decision-making, and the establishment of continuous innovation incubators within hospital departments. Furthermore, hospital accreditation bodies should consider evaluating organizational agility and adaptive capacity as core performance metrics. This could be operationalized through crisis simulation drills and audits of rapid protocol adaptation, rather than solely focusing on static hierarchical compliance, to ensure healthcare systems are resiliently prepared for future global health emergencies.

CONCLUSIONS

The transformation toward an adhocracy organizational culture is the most significant determinant of hospital resilience and healthcare staff adaptability during the COVID-19 pandemic. While clan and market cultures provide essential supportive frameworks for teamwork and operational efficiency, rigid hierarchical structures impede rapid crisis innovation. To safeguard institutional performance and ensure continuous, high-quality patient care in the face of future global health emergencies, hospital policymakers must prioritize the development of agile, innovative leadership models and foster flexible management practices that empower frontline healthcare workers.

DECLARATIONS

1. Acknowledgements

The authors would like to thank the State University of Malang for administrative and academic support, and all participating hospitals and healthcare professionals for their support in data collection. We also extend our gratitude to the Faculty of Public Health, Airlangga University, and the editorial board of the Indonesian Journal of Health Administration for their assistance in the publication process.

2. Ethical Approval and Informed Consent

This study was approved by the Health Research Ethics Committee. Written informed consent was obtained from all participants prior to their participation in the study.

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

3. Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available due to privacy/ethical restrictions but are available from the corresponding author on reasonable request.

4. Funding

This work was supported by the Universitas Negeri Malang, Indonesia. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

5. Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

6. Authors' Contributions

Conceptualization: TMA, STP; Methodology: TMA, DC; Formal analysis and investigation: TMA, STP; Writing - original draft preparation: TMA; Writing - review and editing: STP, DC, AH, SH, DAP; Funding acquisition: TMA; Resources: TMA, STP; Supervision: DC.

7. AI Disclosure

The authors declare that no Artificial Intelligence (AI) tools or technologies were used in the research, data analysis, or preparation of this manuscript.

REFERENCES

Alonazi, W. (2021). Building learning organizational culture during COVID-19 outbreak: a national study. *BMC Health Services Research*, *21*. https://doi.org/10.1186/s12913-021-06454-9

Asmaningrum, N., Ferguson, C., Ridla, A. Z., Sulistyono, R., A'la, M. Z., & Wijaya, D. (2026). Exploring perspectives of nurses' who underwent redeployment in the hospital during the COVID-19 pandemic: A qualitative study. *Contemporary Nurse*, *62*, 273–303. https://doi.org/10.1080/10376178.2026.2615975

Bergami, M., Orlandi, L. B., Giuri, P., Lipparini, A., Manca, C., Poggioli, G., Russo, M., & Viale, P. (2024). Embracing tensions throughout crises: The case of an Italian university hospital during the COVID-19 pandemic. *Health Care Management Review*, *49*, 186–197. https://doi.org/10.1097/hmr.0000000000000404

Boufounou, P., & Argyrou, M. (2022). Changing the organizational culture to transform the economy: The case of Greece. *Frontiers in Research Metrics and Analytics*, *7*. https://doi.org/10.3389/frma.2022.1050544

Crisis leadership and power dynamics in Portuguese hospitals: organisational learning from COVID-19. (2026). *Leadership in Health Services*, 1–20. https://doi.org/10.1108/lhs-11-2025-0183

De La Garza, C., & Lot, N. (2022). The socio-organizational and human dynamics of resilience in a hospital: The case of the COVID-19 crisis. *Journal of Contingencies and Crisis Management*, *30*, 244–256. https://doi.org/10.1111/1468-5973.12419

Duvald, I., Obel, B., Lohse, C., Kirkegaard, H., & Burton, R. (2025). Organizational resilience in emergency healthcare: Lessons from the COVID-19 pandemic in five Danish hospitals. *Social Science & Medicine*, *366*, 117728. https://doi.org/10.1016/j.socscimed.2025.117728

Fahlevi, M., Aljuaid, M., & Saniuk, S. (2022). Leadership Style and Hospital Performance: Empirical Evidence From Indonesia. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.911640

Fontana, S., Baglio, G., Guccio, C., Nicodemo, C., Pignataro, G., & Romeo, D. (2026). Hospital

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

resilience: public versus private sector dynamics. *Empirical Economics*, *70*. https://doi.org/10.1007/s00181-025-02845-7

Gautier, L., Noda, S., Chabrol, F., David, P.-M., Duhoux, A., Hou, R.-Y., Traverson, L., Zinszer, K., & Ridde, V. (2023). Hospital Governance During the COVID-19 Pandemic: A Multiple-Country Case Study. *Health Systems & Reform*, *9*. https://doi.org/10.1080/23288604.2023.2173551

Gong, L.-M., Jiang, S.-S., & Liang, X. (2022). Competing value framework-based culture transformation. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2022.03.019

Guan, X., Wu, H., Xu, J., & Zhang, J. (2022). Privatization reform in public healthcare system: Competition vs. collaboration. *IISE Transactions*, *55*, 217–228. https://doi.org/10.1080/24725854.2022.2044567

Haghighat, M., & Mousavi, S. (2024). Identifying and ranking of the main organizational resilience indicators in the hospital during the COVID-19 pandemic: A study using fuzzy Delphi technique (FDT) and fuzzy analytical hierarchy process (FAHP). *Heliyon*, *10*. https://doi.org/10.1016/j.heliyon.2024.e27241

Irons, R. (2024). Challenging NHS Corporate Mentality: Hospital-Management and Bureaucracy in London's Pandemic. *Medical Anthropology*, *43*, 205–218. https://doi.org/10.1080/01459740.2024.2325606

Katz-Navon, T., & Delegach, M. (2026). Build to Bend, Wired to Withstand: Building Resilience Through Organizational Cultural Paradox. *Academy of Management Proceedings*. https://doi.org/10.5465/amproc.2026.19645abstract

Knudsen, T., Andersen, P., & Overgaard, C. (2025). Organizational culture and quality improvement in healthcare: A qualitative case study using the competing values framework. *Quality Management Journal*, *33*, 121–139. https://doi.org/10.1080/10686967.2025.2578504

Levaggi, L., & Levaggi, R. (2020). Is there scope for mixed markets in the provision of hospital care? *Social Science & Medicine*, *247*, 112810. https://doi.org/10.1016/j.socscimed.2020.112810

Naamati-Schneider, L. (2020). Public-private: unequal competition Israeli public hospitals vs the private health-care system following government reforms. *International Journal of Organizational Analysis*. https://doi.org/10.1108/ijoa-06-2020-2237

Narsa, N. P. D. R. H., Merdeka, L. L., & Dwiyanti, K. T. (2024). The impact of environmental uncertainty on performance during COVID-19 pandemic: the mediating role of decision making structure. *International Journal of Productivity and Performance Management*. https://doi.org/10.1108/ijppm-09-2023-0482

Ojogiwa, O., & Qwabe, B. (2023). "The Practicability of Competing Value Framework as a Stride towards Public Service Delivery Improvement in the Health Sector ". *Transylvanian Review of Administrative Sciences*. https://doi.org/10.24193/tras.69e.6

Oufi, N., De La Garza, C., & Nascimento, A. (2025). Dynamics of COVID-19 crisis management in hospitals and its long-term effects: An analysis using organizational resilience. *Applied Ergonomics*, *126*, 104486. https://doi.org/10.1016/j.apergo.2025.104486

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

Rácskay, J., & Bognár, F. (2025). Organizational Culture Trends in Light of Turbulent Times. *Tér - Gazdaság - Ember/Journal of Region, Economy and Society*. https://doi.org/10.14513/tge-jres.00448

Rosenbäck, R., & Svensson, A. (2025). Power struggles and organizational learning in crisis: the impact of power games on healthcare management during COVID-19. *Journal of Health Organization and Management*, *39*, 561–578. https://doi.org/10.1108/jhom-08-2025-0495

Suprapti, S., Asbari, M., Cahyono, Y., & Mufid, A. (2020). *LEADERSHIP STYLE,ORGANIZATIONAL CULTURE AND INNOVATIVE BEHAVIOR ON PUBLIC HEALTH CENTER PERFORMANCE DURING PANDEMIC COVID-19*. *1*, 76–88. https://doi.org/10.7777/jiemar.v1i2.42

Widyawati, W., Sulmiah, S., & Nurlaela, N. (2021). Organizational Culture and Employee Performance: Assessing the Influence on the Implementation of Public Services During The Covid 19 Pandemic. *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu Dan Praktek Administrasi*. https://doi.org/10.31113/jia.v18i2.754

Yi, J.-J., Yuan, Y., & Zhao, S. (2019). Differential responses to market competition by private and public hospitals in China: a longitudinal analysis. *The Lancet*. https://doi.org/10.1016/s0140-6736(19)32373-6

Zeb, A., Akbar, F., Hussain, K., Safi, A., Rabnawaz, M., & Zeb, F. (2021). The competing value framework model of organizational culture, innovation and performance. *Bus. Process. Manag. J.*, *27*, 658–683. https://doi.org/10.1108/bpmj-11-2019-0464

Zink, M., Wendsche, J., Riedel-Heller, S., Jung, F., & Melzer, M. (2025). Organizational interventions and strategies for COVID-19 pandemic management in acute care setting: A qualitative interview study with nurse leaders in German hospitals. *International Journal of Nursing Studies Advances*, *8*. https://doi.org/10.1016/j.ijnsa.2025.100336

Alonazi, W. (2021). Building learning organizational culture during COVID-19 outbreak: a national study. *BMC Health Services Research*, *21*. https://doi.org/10.1186/s12913-021-06454-9

Asmaningrum, N., Ferguson, C., Ridla, A. Z., Sulistyono, R. E., A'La, M. Z., & Wijaya, D. (2026). Exploring perspectives of nurses' who underwent redeployment in the hospital during the COVID-19 pandemic: A qualitative study. *Contemporary Nurse*, 1–31. https://doi.org/10.1080/10376178.2026.2615975

Bergami, M., Orlandi, L. B., Giuri, P., Lipparini, A., Manca, C., Poggioli, G., Russo, M., & Viale, P. (2024). Embracing tensions throughout crises: The case of an Italian university hospital during the COVID-19 pandemic. *Health Care Management Review*, *49*, 186–197. https://doi.org/10.1097/hmr.0000000000000404

Boufounou, P., & Argyrou, M. (2022). Changing the organizational culture to transform the economy: The case of Greece. *Frontiers in Research Metrics and Analytics*, *7*. https://doi.org/10.3389/frma.2022.1050544

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License

E-ISSN: 3024-9740 DOI: https://doi.org/10.62255/mjhp.v4i2.276

Crisis leadership and power dynamics in Portuguese hospitals: organisational learning from COVID-19. (2026). *Leadership in Health Services*, 1–20. https://doi.org/10.1108/lhs-11-2025-0183

De La Garza, C., & Lot, N. (2022). The socio-organizational and human dynamics of resilience in a hospital: The case of the COVID-19 crisis. *Journal of Contingencies and Crisis Management*, *30*, 244–256. https://doi.org/10.1111/1468-5973.12419

Duvald, I., Obel, B., Lohse, C., Kirkegaard, H., & Burton, R. (2025). Organizational resilience in emergency healthcare: Lessons from the COVID-19 pandemic in five Danish hospitals. *Social Science & Medicine*, *366*, 117728. https://doi.org/10.1016/j.socscimed.2025.117728

Fahlevi, M., Aljuaid, M., & Saniuk, S. (2022). Leadership Style and Hospital Performance: Empirical Evidence From Indonesia. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.911640

Fontana, S., Baglio, G., Guccio, C., Nicodemo, C., Pignataro, G., & Romeo, D. (2026). Hospital resilience: public versus private sector dynamics. *Empirical Economics*, *70*. https://doi.org/10.1007/s00181-025-02845-7

Gautier, L., Noda, S., Chabrol, F., David, P.-M., Duhoux, A., Hou, R.-Y., Traverson, L., Zinszer, K., & Ridde, V. (2023). Hospital Governance During the COVID-19 Pandemic: A Multiple-Country Case Study. *Health Systems & Reform*, *9*. https://doi.org/10.1080/23288604.2023.2173551

Gong, L.-M., Jiang, S.-S., & Liang, X. (2022). Competing value framework-based culture transformation. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2022.03.019

Guan, X., Wu, H., Xu, J., & Zhang, J. (2022). Privatization reform in public healthcare system: Competition vs. collaboration. *IISE Transactions*, *55*, 217–228. https://doi.org/10.1080/24725854.2022.2044567

Haghighat, M., & Mousavi, S. (2024). Identifying and ranking of the main organizational resilience indicators in the hospital during the COVID-19 pandemic: A study using fuzzy Delphi technique (FDT) and fuzzy analytical hierarchy process (FAHP). *Heliyon*, *10*. https://doi.org/10.1016/j.heliyon.2024.e27241

Irons, R. (2024). Challenging NHS Corporate Mentality: Hospital-Management and Bureaucracy in London's Pandemic. *Medical Anthropology*, *43*, 205–218. https://doi.org/10.1080/01459740.2024.2325606

Katz-Navon, T., & Delegach, M. (2026). Build to Bend, Wired to Withstand: Building Resilience Through Organizational Cultural Paradox. *Academy of Management Proceedings*. https://doi.org/10.5465/amproc.2026.19645abstrac

© 2026 The Author(S). Health Frontiers Published By Tarqabin Nusantara Group. This Is An Open Access Article Under The Terms Of The Creative Commons Attribution-ShareAlike 4.0 International License